

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-7. (canceled)

8. (currently amended) An isolated nucleic acid molecule comprising a sequence encoding a sortase-transamidase enzyme from a Gram-positive bacterium, wherein the enzyme ~~comprises~~ consists of an amino acid sequence selected from the group consisting of: (1) M-K-K-W-T-N-R-L-M-T-I-A-G-V-V-L-I-L-V-A-A-Y-L-F-A-K-P-H-I-D-N-Y-L-H-D-K-D-K-D-E-K-I-E-Q-Y-D-K-N-V-K-E-Q-A-S-K-D-K-K-Q-Q-A-K-P-Q-I-P-K-D-K-S-K-V-A-G-Y-I-E-I-P-D-A-D-I-K-E-P-V-Y-G-P-A-T-P-E-Q-L-N-R-G-V-S-F-A-E-E-N-E-S-L-D-D-Q-N-I-S-I-A-G-H-T-F-I-D-R-P-N-Y-Q-F-T-N-L-K-A-A-K-K-G-S-M-V-Y-F-K-V-G-N-E-T-R-K-Y-K-M-T-S-I-R-D-V-K-P-T-D-V-G-V-L-D-E-Q-K-G-K-D-K-Q-L-T-L-I-T-C-D-D-Y-N-E-K-T-G-V-W-E-K-R-K-I-F-V-A-T-E-V-K (SEQ ID NO:3) and (2) sequences incorporating one or more conservative amino acid substitutions in SEQ ID NO:3, wherein the conservative amino acid substitutions are any of the following: (a) any of isoleucine, leucine, and valine for any other of these amino acids; (b) aspartic acid for glutamic acid and vice versa; (c) glutamine for asparagine and vice versa; and (d) serine for threonine and vice versa.

9. (previously presented) An isolated nucleic acid molecule according to claim 8 wherein the amino acid sequence of said enzyme is: M-K-K-W-T-N-R-L-M-T-I-A-G-V-V-L-I-L-V-A-A-Y-L-F-A-K-P-H-I-D-N-Y-L-H-D-K-D-K-D-E-K-I-E-Q-Y-D-K-N-V-K-E-Q-A-S-K-D-K-K-Q-Q-A-K-P-Q-I-P-K-D-K-S-K-V-A-G-Y-I-E-I-P-D-A-D-I-K-E-P-V-Y-G-P-A-T-P-E-Q-L-N-R-G-V-S-F-A-E-E-N-E-S-L-D-D-Q-N-I-S-I-A-G-H-T-F-I-D-R-P-N-Y-Q-F-T-N-L-K-A-A-K-K-G-S-M-V-Y-F-K-V-G-N-E-T-R-K-Y-K-M-T-S-I-R-D-V-K-P-T-D-V-G-V-L-D-E-Q-K-G-K-D-K-Q-L-T-L-I-T-C-D-D-Y-N-E-K-T-G-V-W-E-K-R-K-I-F-V-A-T-E-V-K (SEQ ID NO:3).

10. (previously presented) An isolated nucleic acid molecule encoding a sortase-transamidase enzyme from a Gram-positive bacterium, comprising a sequence selected from the group consisting of: (1) ATGAAAAAATGGACAAATCGATTA
ATGACAATCGCTGGTGTGGTACTTATCCTAGTGGCAGCATATTTGTTTGCTA
AACGAGATATGGATAATTATCTTCACGATAAAGATAAAGATGAAAAGATTGAA
CAATATGATAAAAATGTAAAAAGAACAGGCGAGTAAAGATAAAAAGCAGCAA
GCTAAACCTCAAATTGCGAAAGATAAATCGAAAGTGGCAGGCTATATTGAAA
TTCCAGATGCTGATATTAAGAACGAGTATATCCAGGACCAGCAACACCTGA
ACAATTAAATAGAGGTGTAAGCTTTGGAGAAGAAAATGAATCACTAGATGAT
CAAAATATTTCAATTGCAGGACACACTTTCATTGACCGTCCGAACCTATCAATT
TACAAATCTTAAAGCAGCCAAAAAAGGTAGTATGGTGTACTTTAAAGTTGGT
AATGAAACACGTAAGTATAAAATGACAAGTATAAGAGATGTTAAGCCTACAG
ATGTAGGAGTTCTAGATGAACAAAAAGGTAAAGATAAACAATTAACATTAATT
ACTTGTGATGATTACAATGAAAAGACAGGCGTTTGGGAAAAACGTAAAATCT
TTGTAGCTACAGAAGTCAAATAA (SEQ ID NO:2); and (2) a sequence
complementary to SEQ ID NO:2.

11-13. (canceled)

14. (original) A vector comprising the nucleic acid sequence of claim 8 operatively linked to at least one control sequence that controls the expression or regulation of the nucleic acid sequence.

15. (original) A vector comprising the nucleic acid sequence of claim 9 operatively linked to at least one control sequence that controls the expression or regulation of the nucleic acid sequence.

16. (original) A vector comprising the nucleic acid sequence of claim 10 operatively linked to at least one control sequence that controls the expression or regulation of the nucleic acid sequence.

17. (canceled)

18. (original) A host cell transfected with the vector of claim 14.

19. (original) A host cell transfected with the vector of claim 15.

20. (original) A host cell transfected with the vector of claim 16.

21. (canceled)

22. (previously presented) A method for producing a substantially purified sortase-transamidase enzyme comprising the steps of:

(a) culturing the host cell of claim 18 under conditions in which the host cell expresses the encoded sortase-transamidase enzyme; and

(b) purifying the expressed enzyme to produce the substantially purified sortase-transamidase enzyme.

23. (previously presented) A method for producing a substantially purified sortase-transamidase enzyme comprising the steps of:

(a) culturing the host cell of claim 19 under conditions in which the host cell expresses the encoded sortase-transamidase enzyme; and

(b) purifying the expressed enzyme to produce the substantially purified sortase-transamidase enzyme.

24. (previously presented) A method for producing a substantially purified sortase-transamidase enzyme comprising the steps of:

(a) culturing the host cell of claim 20 under conditions in which the host cell expresses the encoded sortase-transamidase enzyme; and

(b) purifying the expressed enzyme to produce the substantially purified sortase-transamidase enzyme.

25-97. (canceled)